

**Polymers Substantially Free of Long Chain Branching****ABSTRACT**

The invention relates to new polymerization processes including diluents including hydrofluorocarbons and their use to produce novel polymers substantially free of long chain branching. In particular, the invention relates to copolymers of an isoolefin, preferably isobutylene, and a multiolefin, preferably a conjugated diene, more preferably isoprene, substantially free of long chain branching.